

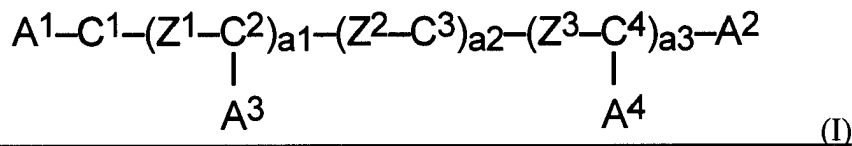
**AMENDMENTS TO THE CLAIMS**

**This listing of claims will replace all prior versions and listings of claims in the application:**

**LISTING OF CLAIMS:**

1. (currently amended): A mesogenic, cross-linkable mixture comprising:

- i) a cross-linkable liquid crystalline host comprising at least one cross-linkable liquid crystalline compound, and
- ii) at least one chiral or achiral rod shaped additive component, wherein the additive component is a compound of formula (I):

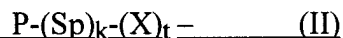


wherein:

C<sup>1</sup> to C<sup>4</sup> are selected from optionally substituted cyclohexyl or cyclohexylene, phenyl or phenylene, naphthyl or naphthylene or phenanthryl or phenanthrylene;

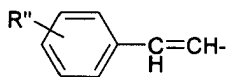
connected to each other at the opposite positions via the bridging groups Z<sup>1</sup> to Z<sup>3</sup>;

A<sup>1</sup> to A<sup>4</sup> independently from each other is hydrogen, a polar group which is cyano, nitro, a halogen, or a group of formula (II):



in which:

P is hydrogen or a polymerizable group which is CH<sub>2</sub>=CW-, CH<sub>2</sub>=CW-O-, CH<sub>2</sub>=CW-COO- or



wherein:

W is H, CH<sub>3</sub>, F, Cl, Br or I,

R'' is a C<sub>1-6</sub> alkyl group, methoxy, cyano, F, Cl, Br or I,

Sp is a C<sub>1-22</sub> branched or straight-chain alkylene group, in which one or more -CH<sub>2</sub>- groups present in the hydrocarbon chain may be replaced, independently, by one or more groups selected from -O-, -CH(OH)-, -SO<sub>2</sub>-, -COO-, -OCO-, -OCO-O-, -CH=CH-, -C≡C-, -(CF<sub>2</sub>)<sub>r</sub>-,

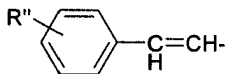
with the proviso that no two oxygen atoms are directly linked to each other, and wherein r is an integer between 1 and 10,

k is 1,

X is -O-, -CO-, -COO-, -OCO-, -CH=CH-, -C≡C-, or a single bond,

t is 1,

with the proviso that at least one of A<sup>1</sup> to A<sup>4</sup> comprises a polymerizable group which is CH<sub>2</sub>=CW-, CH<sub>2</sub>=CW-O-, CH<sub>2</sub>=CW-COO- or



wherein:

W is H, CH<sub>3</sub>, F, Cl, Br or I,

R'' is a C<sub>1-6</sub> alkyl group, methoxy, cyano, F, Cl, Br or I;

$Z^1$  to  $Z^3$  are independently from each other -CH(OH)-, -CO-, -CH<sub>2</sub>(CO)-, -SO-, -CH<sub>2</sub>(SO)-, -SO<sub>2</sub>-, -CH<sub>2</sub>(SO<sub>2</sub>)-, -COO-, -OCO-, -COCF<sub>2</sub>-, -CF<sub>2</sub>CO-, -S-CO-, -CO-S-, -SOO-, -OSO-, -SOS-, -CH<sub>2</sub>-CH<sub>2</sub>-, -OCH<sub>2</sub>-, -CH<sub>2</sub>O-, -CH=CH-, -C≡C-, -CH=CH-COO-, -OCO-CH=CH-, -CH=N-, -C(CH<sub>3</sub>)=N-, -N=N- or a single covalent bond,

$a_1$ ,  $a_2$  and  $a_3$  are independently from each other integers from 0 to 3, such that

$1 \leq a_1 + a_2 + a_3 \leq 3$ ,

with the proviso that the sequence:

$A^1-C^1-(Z^1-C^2)_{a_1}-(Z^2-C^3)_{a_2}-(Z^3-C^4)_{a_3}-A^2$

describes the long molecular axis of the rod shaped additive components

~~wherein said additive component has a rigid core and comprises at least two fused or linked, optionally substituted, non-aromatic, aromatic, carbocyclic or heterocyclic groups, and also comprises at least one optionally substituted alkyl residue, and at least one polymerizable group~~ and wherein the additive component changes from the liquid crystalline state to the isotropic state at a temperature of 20 °C or lower.

2. (canceled).

3. (original): A mixture according to claim 1, wherein the additive component has a transition temperature to the isotropic state of 0 °C or lower.

4. (previously presented): A mixture according to claim 1 having a clearing temperature of 30 °C or higher.

5. (previously presented): A mixture according to claim 1 having a clearing temperature of 50 °C or higher.

6. (previously presented): A mixture according to any one of claims 1 or 3-5, wherein the liquid crystalline host has a clearing temperature of 50 °C or higher.

7. (canceled).

8. (canceled).

9. (canceled).

10. (canceled).

11. (canceled).

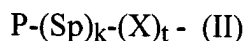
12. (currently amended): A mixture according to ~~one of claims 7 and 8~~ claim 1, wherein:

A<sup>1</sup> comprises a polymerizable group which is CH<sub>2</sub>=CW-, CH<sub>2</sub>=CW-O-, CH<sub>2</sub>=CW-COO-,

wherein:

W is H or CH<sub>3</sub>,

A<sup>2</sup> has the meaning of formula (II),



in which:

P is hydrogen or a polymerizable group which is  
CH<sub>2</sub>=CW-, CH<sub>2</sub>=CW-O- or CH<sub>2</sub>=CW-COO-,

wherein:

W is H or CH<sub>3</sub>,

Sp is a branched C<sub>3</sub>-C<sub>16</sub> alkylene group, optionally comprising at least one oxocarbonyl or carbonyloxy group, or is a straight C<sub>2</sub>-C<sub>16</sub> alkylene group, comprising at least one oxocarbonyl or carbonyloxy group, wherein one or more -CH<sub>2</sub>- groups present in the

hydrocarbon chain may be replaced, independently, by one or more groups selected from -O-, -CH=CH-, -C≡C-, with the proviso that no two oxygen atoms are directly linked to each other,

k is 1,

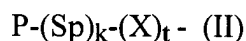
X is -O-, -CO-, -COO-, -OCO-, -CH=CH-, -C≡C-, or a single bond,  
more preferably -O-, -COO-, -OCO- or a single bond,

t is 1

A<sup>4</sup> is hydrogen.

13. (currently amended): A mixture according to ~~one of claims 7 and 8~~ claim 1, wherein:

A<sup>1</sup> has the meaning of formula (II),



wherein:

P is hydrogen or a polymerizable group which is CH<sub>2</sub>=CW-, CH<sub>2</sub>=CW-O-  
or CH<sub>2</sub>=CW-COO-,

wherein:

W is H or CH<sub>3</sub>,

Sp is a branched C<sub>3</sub>-C<sub>16</sub> alkylene group, optionally comprising at least one oxocarbonyl or group, or is a straight C<sub>2</sub>-C<sub>1</sub> alkylene group, comprising at least one oxocarbonyl or carbonyloxy group, wherein one or more -CH<sub>2</sub>- groups present in the hydrocarbon chain may be replaced, independently, by one or more groups selected from -O-, -CH=CH-, -C≡C-, with the proviso that no two oxygen atoms are directly linked to each other,

k is 1,

X is -O-, -CO-, -COO-, -OCO-, -CH=CH-, -C≡C-, or a single bond, more preferably -O-, -COO-, -OCO- or a single bond,

t is 1,

A<sup>2</sup> comprises a polymerizable group which is CH<sub>2</sub>=CW-, CH<sub>2</sub>=CW-O-, or CH<sub>2</sub>=CW-COO-,

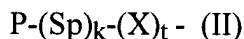
wherein:

W is H or CH<sub>3</sub>,

A<sup>4</sup> is hydrogen.

14. (currently amended): A mixture according to ~~one of claims 7 and 8~~ claim 1, wherein:

A<sup>1</sup> has the meaning of formula (II),



wherein:

P is hydrogen or a polymerizable group which is CH<sub>2</sub>=CW-, CH<sub>2</sub>=CW-O- or CH<sub>2</sub>=CW-COO-,

wherein:

W is H or CH<sub>3</sub>,

Sp is a branched C<sub>3</sub>-C<sub>16</sub> alkylene group, optionally comprising at least one oxocarbonyl or carbonyloxy group, or is a straight C<sub>2</sub>-C<sub>16</sub> alkylene group, comprising at least one oxocarbonyl or carbonyloxy group, wherein one or more -CH<sub>2</sub>- groups present in the hydrocarbon chain may be replaced, independently, by one or more groups selected from -O-, -CH=CH-, -C≡C-, with the proviso that no two oxygen atoms are directly linked to each other,

k is 1,

X is -O-, -CO-, -COO-, -OCO-, -CH=CH-, -C≡C-, or a single bond, more preferably -O-, -COO-, -OCO- or a single bond,

t is 1,

A<sup>3</sup> comprises a polymerizable group which is CH<sub>2</sub>=CW-, CH<sub>2</sub>=CW-O-, or CH<sub>2</sub>=CW-COO-,

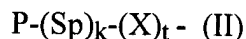
wherein:

W is H or CH<sub>3</sub>,

A<sup>4</sup> is hydrogen.

15. (currently amended): A mixture according to ~~one of claims 7 and 8~~ claim 1, wherein:

A<sup>2</sup> has the meaning of formula (II),



in which:

P is hydrogen or a polymerizable group which is CH<sub>2</sub>=CW-, CH<sub>2</sub>=CW-O- or CH<sub>2</sub>=CW-COO-,

wherein:

W is H or CH<sub>3</sub>,

Sp is a branched C<sub>3</sub>-C<sub>16</sub> alkylene group, optionally comprising at least one oxocarbonyl or carbonlyoxy group, or is a straight C<sub>2</sub>-C<sub>16</sub> alkylene group, comprising at least one oxocarbonyl or carbonyloxy group, wherein one or more -CH<sub>2</sub>- groups present in the hydrocarbon chain may be replaced, independently, by one or more groups selected from -O-, -CH=CH-, -C≡C-, with the proviso that no two oxygen atoms are directly linked to each other,

k is 1,

X is -O-, -CO-, -COO-, -OCO-, -CH=CH-, -C≡C-, or a single bond,  
more preferably -O-, -COO-, -OCO- or a single bond,

t is 1,

A<sup>3</sup> comprises a polymerizable group which is CH<sub>2</sub>=CW-, CH<sub>2</sub>=CW-O-, or  
CH<sub>2</sub>=CW-COO-,

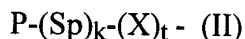
wherein:

W is H or CH<sub>3</sub>,

A<sup>4</sup> is hydrogen.

16. (currently amended): A mixture according to ~~one of claims 7 and 8~~ claim 1, wherein:

A<sup>1</sup> and A<sup>2</sup> have the meaning of formula (II),



wherein:

P is hydrogen or a polymerizable group which is CH<sub>2</sub>=CW-, CH<sub>2</sub>=CW-O-  
or CH<sub>2</sub>=CW-COO-,

wherein:

W is H or CH<sub>3</sub>,

Sp is a branched C<sub>3</sub>-C<sub>16</sub> alkylene group, optionally comprising at least one  
oxocarbonyl or carbonyloxy group, or is a straight C<sub>2</sub>-C<sub>16</sub> alkylene group, comprising at least one  
oxocarbonyl or carbonyloxy group, wherein one or more -CH<sub>2</sub>- groups present in the  
hydrocarbon chain may be replaced, independently, by one or more groups selected from -O-,  
-CH=CH-, -C≡C-, with the proviso that no two oxygen atoms are directly linked to each other,

k is 1,



X is -O-, -CO-, -COO-, -OCO-, -CH=CH-, -C≡C-, or a single bond, more preferably -O-, -COO-, -OCO- or a single bond,

t is 1,

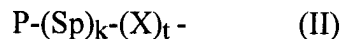
A<sup>3</sup> comprises a polymerizable group which is CH<sub>2</sub>=CW-, CH<sub>2</sub>=CW-O-, or CH<sub>2</sub>=CW-COO-,

wherein:

W is H or CH<sub>3</sub>,

A<sup>4</sup> is hydrogen.

17. (currently amended): A mixture according to ~~one of claims 7 and 8~~ claim 1, wherein at least one of A<sup>1</sup> to A<sup>3</sup> has the meaning of formula (II),



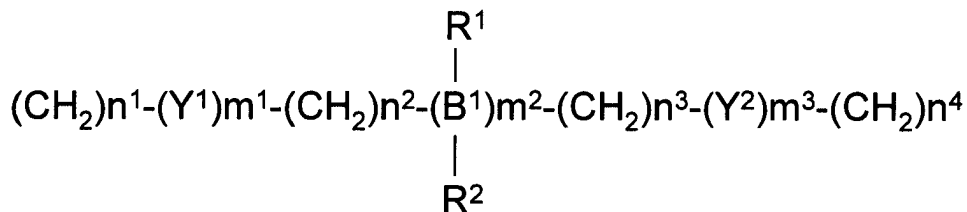
wherein:

P is hydrogen or a polymerizable group which is CH<sub>2</sub>=CW-, CH<sub>2</sub>=CW-O-, CH<sub>2</sub>=CW-COO-,

wherein:

W is H or CH<sub>3</sub>,

Sp has the meaning of formula (III)



(III)

wherein:

$Y^1$  and  $Y^2$  each independently represent -OCO- or -COO-,

$B^1$  represents C or CH,

$R^1$  and  $R^2$  each independently represent hydrogen or a  $C_1$ - $C_{12}$  alkyl residue, preferably a  $C_1$ - $C_6$  alkyl residue, which is a methyl, ethyl, propyl, butyl, pentyl, hexyl or isopropyl residue,

$n_1$ ,  $n_2$ ,  $n_3$  and  $n_4$  are independently integers from 0 to 15, such that  $0 \leq n_1 + n_2 + n_3 + n_4 \leq 15$ ,

$m_1$ ,  $m_2$  and  $m_3$  are independently integers from 0 to 3, such that

$1 \leq m_1 + m_2 + m_3 \leq 3$  and wherein:

one or more -CH<sub>2</sub>- groups present in the hydrocarbon chain of (III) may be replaced, independently, by one or more groups selected from -O-, -CH=CH- or -C≡C-,

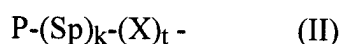
with the proviso that the carbon-carbon double bond of P is not directly connected to the carbon atom of  $Y^1$  or  $Y^2$ ,

$k$  is 1,

$X$  is -O-, -CO-, -COO-, -OCO-, -CH=CH-, -C≡C-, or a single bond, more preferably -O-, -COO-, -OCO- or a single bond,

$t$  is 1.

18. (currently amended): A mixture according to ~~one of claims 7 and 8~~ claim 1, wherein at least one of  $A^1$  to  $A^3$  has the meaning of formula (II),



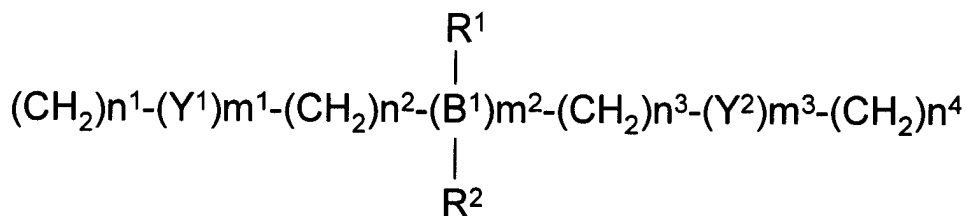
wherein:

P is hydrogen or a polymerizable group which is  $\text{CH}_2=\text{CW}-$ ,  $\text{CH}_2=\text{CW}-\text{O}-$ ,  
 $\text{CH}_2=\text{CW}-\text{COO}-$ ,

wherein:

W is H or  $\text{CH}_3$ ,

Sp has the meaning of formula (III)



(III)

wherein:

$\text{Y}^1$  and  $\text{Y}^2$  each independently represent  $-\text{OCO}-$  or  $-\text{COO}-$ ,

$\text{B}^1$  represents C or CH,

$\text{R}^1$  is hydrogen

$\text{R}^2$  represents a methyl, ethyl, propyl, butyl, pentyl or hexyl group and most preferably a methyl or ethyl group,

$n^1$ ,  $n^2$ ,  $n^3$  and  $n^4$  are independently integers from 0 to 15,

such that  $0 \leq n^1 + n^2 + n^3 + n^4 \leq 15$ ,

$m^1$ ,  $m^2$  and  $m^3$  are independently integers from 0 to 3,

such that  $1 \leq m^1 + m^2 + m^3 \leq 3$ , and wherein:

one or more  $-\text{CH}_2-$  groups present in the hydrocarbon chain of (III) may be replaced, independently, by one or more groups selected from  $-\text{O}-$ ,  $-\text{CH}=\text{CH}-$  or  $-\text{C}\equiv\text{C}-$ ,

with the proviso that the carbon-carbon double bond of P is not directly connected to the carbon atom of Y<sup>1</sup> or Y<sup>2</sup>,

k is 1,

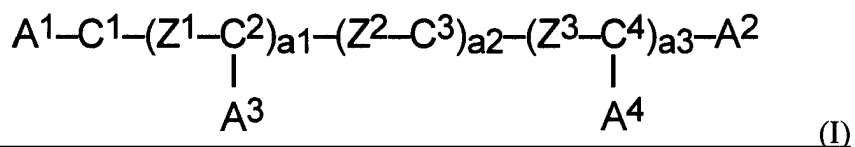
X is -O-, -CO-, -COO-, -OCO-, -CH=CH-, -C≡C-, or a single bond, more preferably -O-, -COO-, -OCO- or a single bond,

t is 1.

19. (previously presented): A mixture according to claim 1 comprising further agents, such as cross-linking agents, stabilizing agents, initiators, dyes, other chiral or achiral additives and plasticizers.

20. (previously presented): A mixture according to claim 1 in form of an elastomer, polymer gel, polymer network or polymer film.

21. (currently amended): A chiral or achiral rod shaped compound, wherein said compound is of formula (I):

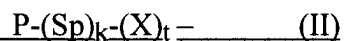


wherein:

C<sup>1</sup> to C<sup>4</sup> are selected from optionally substituted cyclohexyl or cyclohexylene, phenyl or phenylene, naphthyl or naphthylene or phenanthryl or phenanthrylene;

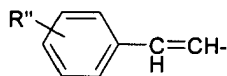
connected to each other at the opposite positions via the bridging groups Z<sup>1</sup> to Z<sup>3</sup>;

A<sup>1</sup> to A<sup>4</sup> independently from each other is hydrogen, a polar group which is cyano, nitro, a halogen, or a group of formula (II):



\_\_\_\_\_ in which:

\_\_\_\_\_ P \_\_\_\_\_ is hydrogen or a polymerizable group which is  $\text{CH}_2=\text{CW}-$ ,  
 $\text{CH}_2=\text{CW}-\text{O}-$ ,  $\text{CH}_2=\text{CW}-\text{COO}-$  or



\_\_\_\_\_ wherein:

\_\_\_\_\_ W \_\_\_\_\_ is H,  $\text{CH}_3$ , F, Cl, Br or I,

\_\_\_\_\_ R'' \_\_\_\_\_ is a  $\text{C}_{1-6}$  alkyl group, methoxy, cyano, F, Cl, Br or I,

\_\_\_\_\_ Sp \_\_\_\_\_ is a  $\text{C}_{1-22}$  branched or straight-chain alkylene group, in which one  
or more  $-\text{CH}_2-$  groups present in the hydrocarbon chain may be replaced, independently, by one  
or more groups selected from  $-\text{O}-$ ,  $-\text{CH}(\text{OH})-$ ,  $-\text{SO}_2-$ ,  $-\text{COO}-$ ,  $-\text{OCO}-$ ,  $-\text{OCO}-\text{O}-$ ,  $-\text{CH}=\text{CH}-$ ,  
 $-\text{C}\equiv\text{C}-$ ,  $-(\text{CF}_2)_r-$ ,

\_\_\_\_\_ with the proviso that no two oxygen atoms are directly linked to each other, and  
wherein r is an integer between 1 and 10,

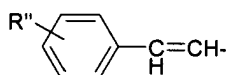
\_\_\_\_\_ k \_\_\_\_\_ is 1,

\_\_\_\_\_ X \_\_\_\_\_ is  $-\text{O}-$ ,  $-\text{CO}-$ ,  $-\text{COO}-$ ,  $-\text{OCO}-$ ,  $-\text{CH}=\text{CH}-$ ,  $-\text{C}\equiv\text{C}-$ , or a single bond,

\_\_\_\_\_ t \_\_\_\_\_ is 1,

\_\_\_\_\_ with the proviso that at least one of  $\text{A}^1$  to  $\text{A}^4$  comprises a \_\_\_\_\_

\_\_\_\_\_ polymerizable group which is  $\text{CH}_2=\text{CW}-$ ,  $\text{CH}_2=\text{CW}-\text{O}-$ ,  $\text{CH}_2=\text{CW}-\text{COO}-$  or



\_\_\_\_\_ wherein:

\_\_\_\_\_ W \_\_\_\_\_ is H,  $\text{CH}_3$ , F, Cl, Br or I,

R"        is a C<sub>1-6</sub> alkyl group, methoxy, cyano, F, Cl, Br or I;

Z<sup>1</sup> to Z<sup>3</sup> are independently from each other -CH(OH)-, -CO-, -CH<sub>2</sub>(CO)-, -SO-,  
-CH<sub>2</sub>(SO)-, -SO<sub>2</sub>-, -CH<sub>2</sub>(SO<sub>2</sub>)-, -COO-, -OCO-, -COCF<sub>2</sub>-, -CF<sub>2</sub>CO-, -S-CO-, -CO-S-, -SOO-,  
-OSO-, -SOS-, -CH<sub>2</sub>-CH<sub>2</sub>-, -OCH<sub>2</sub>-, -CH<sub>2</sub>O-, -CH=CH-, -C≡C-, -CH=CH-COO-,  
-OCO-CH=CH-, -CH=N-, -C(CH<sub>3</sub>)=N-, -N=N- or a single covalent bond,

a<sub>1</sub>, a<sub>2</sub> and a<sub>3</sub> are independently from each other integers from 0 to 3, such that

1 ≤ a<sub>1</sub> + a<sub>2</sub> + a<sub>3</sub> ≤ 3,

with the proviso that the sequence:

A<sup>1</sup>-C<sup>1</sup>-(Z<sup>1</sup>-C<sup>2</sup>)<sub>a<sub>1</sub></sub>-(Z<sup>2</sup>-C<sup>3</sup>)<sub>a<sub>2</sub></sub>-(Z<sup>3</sup>-C<sup>4</sup>)<sub>a<sub>3</sub></sub>-A<sup>2</sup>

describes the long molecular axis of the rod shaped additive components~~has a rigid core~~  
~~and comprises at least two fused or linked, optionally substituted, non-aromatic, aromatic,~~  
~~carbocyclic or heterocyclic groups, and also comprises at least one optionally substituted alkyl~~  
~~residue, and also comprises at least one polymerizable group and has a transition temperature to~~  
the isotropic state of 20 °C or lower.

22. (canceled).

23. (previously presented): A compound according to claim 21, wherein the compound  
has transition temperature to the isotropic state of 0 °C or lower.

24. (canceled).

25. (canceled).

26. (canceled).

27. (canceled).

28. (canceled).

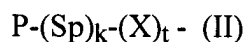
29. (currently amended): A compound according to ~~claim 24~~ claim 21, wherein:

A<sup>1</sup> comprises a polymerizable group which is CH<sub>2</sub>=CW-, CH<sub>2</sub>=CW-O-, CH<sub>2</sub>=CW-COO-,

wherein:

W is H or CH<sub>3</sub>,

A<sup>2</sup> has the meaning of formula (II),



in which:

P is hydrogen or a polymerizable group which is CH<sub>2</sub>=CW-, CH<sub>2</sub>=CW-O- or CH<sub>2</sub>=CW-COO-,

wherein:

W is H or CH<sub>3</sub>,

Sp is a branched C<sub>3</sub>-C<sub>16</sub> alkylene group, optionally comprising at least one oxocarbonyl or carbonlyoxy group, or is a straight C<sub>2</sub>-C<sub>16</sub> alkylene group, comprising at least one oxocarbonyl or carbonyloxy group, wherein one or more -CH<sub>2</sub>- groups present in the hydrocarbon chain may be replaced, independently, by one or more groups selected from -O-, -CH=CH-, -C≡C-, with the proviso that no two oxygen atoms are directly linked to each other,

k is 1,

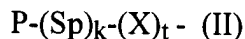
X is -O-, -CO-, -COO-, -OCO-, -CH=CH-, -C≡C-, or a single bond, more preferably -O-, -COO-, -OCO- or a single bond,

t is 1

A<sup>4</sup> is hydrogen.

30. (currently amended): A compound according to ~~claim 24~~ claim 21, wherein:

A<sup>1</sup> has the meaning of formula (II),



wherein:

P is hydrogen or a polymerizable group which is CH<sub>2</sub>=CW-, CH<sub>2</sub>=W-O- or CH<sub>2</sub>=CW-COO-,

wherein:

W is H or CH<sub>3</sub>,

Sp is a branched C<sub>3</sub>-C<sub>16</sub> alkylene group, optionally comprising at least one oxocarbonyl or carbonyloxy group, or is a straight C<sub>2</sub>-C<sub>16</sub> alkylene group, comprising at least one oxocarbonyl or carbonyloxy group, wherein one or more -CH<sub>2</sub>- groups present in the hydrocarbon chain may be replaced, independently, by one or more groups selected from -O-, -CH=CH-, -C≡C-, with the proviso that no two oxygen atoms are directly linked to each other,

k is 1,

X is -O-, -CO-, -COO-, -OCO-, -CH=CH-, -C≡C-, or a single bond, more preferably -O-, -COO-, -OCO- or a single bond,

t is 1,

A<sup>2</sup> comprises a polymerizable group which is CH<sub>2</sub>=CW-, CH<sub>2</sub>=CW-O-, or CH<sub>2</sub>=CW-COO-,

wherein:

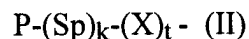
W is H or CH<sub>3</sub>,

A<sup>4</sup> is hydrogen.



31. (currently amended): A compound according to ~~claim 24~~ claim 21, wherein:

A<sup>1</sup> has the meaning of formula (II),



wherein:

P is hydrogen or a polymerizable group which is CH<sub>2</sub>=CW-, CH<sub>2</sub>=CW-O- or CH<sub>2</sub>=W-COO-,

wherein:

W is H or CH<sub>3</sub>,

Sp is a branched C<sub>3</sub>-C<sub>16</sub> alkylene group, optionally comprising at least one oxocarbonyl or carbonyloxy group, or is a straight C<sub>2</sub>-C<sub>16</sub> alkylene group, comprising at least one oxocarbonyl or carbonyloxy group, wherein one or more -CH<sub>2</sub>- groups present in the hydrocarbon chain may be replaced, independently, by one or more groups selected from -O-, -CH=CH-, -C≡C-, with the proviso that no two oxygen atoms are directly linked to each other,

k is 1,

X is -O-, -CO-, -COO-, -OCO-, -CH=CH-, -C≡C-, or a single bond, more preferably -O-, -COO-, -OCO- or a single bond,

t is 1,

A<sup>3</sup> comprises a polymerizable group which is CH<sub>2</sub>=CW-, CH<sub>2</sub>=CW-O-, or CH<sub>2</sub>=CW-COO-,

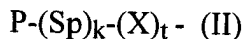
wherein:

W is H or CH<sub>3</sub>,

A<sup>4</sup> is hydrogen.

32. (currently amended): A compound according to ~~claim 24~~ claim 21, wherein:

A<sup>2</sup> has the meaning of formula (II),



wherein:

P is hydrogen or a polymerizable group which is CH<sub>2</sub>=CW-, CH<sub>2</sub>=CW-O- or CH<sub>2</sub>=CW-COO-,

wherein:

W is H or CH<sub>3</sub>,

Sp is a branched C<sub>3</sub>-C<sub>16</sub> alkylene group, optionally comprising at least one oxocarbonyl or carbonyloxy group, or is a straight C<sub>2</sub>-C<sub>16</sub> alkylene group, comprising at least one oxocarbonyl or carbonyloxy group, wherein one or more -CH<sub>2</sub>- groups present in the hydrocarbon chain may be replaced, independently, by one or more groups selected from -O-, -CH=CH-, -C≡C-, with the proviso that no two oxygen atoms are directly linked to each other,

k is 1,

X is -O-, -CO-, -COO-, -OCO-, -CH=CH-, -C≡C-, or a single bond, more preferably -O-, -COO-, -OCO- or a single bond,

t is 1,

A<sup>3</sup> comprises a polymerizable group which is CH<sub>2</sub>=CW-, CH<sub>2</sub>=CW-O-, or CH<sub>2</sub>=CW-COO-,

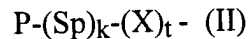
wherein:

W is H or CH<sub>3</sub>,

A<sup>4</sup> is hydrogen.

33. (currently amended): A compound according to ~~claim 24~~ claim 21, wherein:

A<sup>1</sup> and A<sup>2</sup> have the meaning of formula (II),



wherein:

P is hydrogen or a polymerizable group which is CH<sub>2</sub>=CW-, CH<sub>2</sub>=CW-O- or CH<sub>2</sub>=CW-COO-,

wherein:

W is H or CH<sub>3</sub>,

Sp is a branched C<sub>3</sub>-C<sub>16</sub> alkylene group, optionally comprising at least one oxocarbonyl or carbonlyoxy group, or is a straight C<sub>2</sub>-C<sub>16</sub> alkylene group, comprising at least one oxocarbonyl or carbonyloxy group, wherein one or more -CH<sub>2</sub>- groups present in the hydrocarbon chain may be replaced, independently, by one or more groups selected from -O-, -CH=CH-, -C≡C-, with the proviso that no two oxygen atoms are directly linked to each other,

k is 1,

X is -O-, -CO-, -COO-, -OCO-, -CH=CH-, -C≡C-, or a single bond, more preferably -O-, -COO-, -OCO- or a single bond,

t is 1,

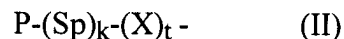
A<sup>3</sup> comprises a polymerizable group which is CH<sub>2</sub>=CW-, CH<sub>2</sub>=CW-O-, or CH<sub>2</sub>=CW-COO-,

wherein:

W is H or CH<sub>3</sub>,

A<sup>4</sup> is hydrogen.

34. (currently amended): A compound according to ~~claim 24~~ claim 21, wherein at least one of A<sup>1</sup> to A<sup>3</sup> has the meaning of formula (II),



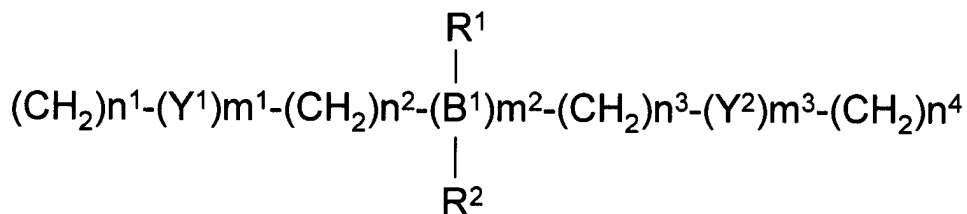
wherein:

P is hydrogen or a polymerizable group which is CH<sub>2</sub>=CW-, CH<sub>2</sub>=CW-O-, CH<sub>2</sub>=CW-COO-,

wherein:

W is H or CH<sub>3</sub>,

Sp has the meaning of formula (III)



(III)

wherein:

Y<sup>1</sup> and Y<sup>2</sup> each independently represent -OCO- or -COO-,

B<sup>1</sup> represents C or CH,

R<sup>1</sup> and R<sup>2</sup> each independently represent hydrogen or a C<sub>1</sub>-C<sub>12</sub> alkyl residue, preferably a C<sub>1</sub>-C<sub>6</sub> alkyl residue, which is methyl, ethyl, propyl, butyl, pentyl, hexyl or isopropyl residue,

n<sub>1</sub>, n<sub>2</sub>, n<sub>3</sub> and n<sub>4</sub> are independently integers from 0 to 15, such that 0 ≤ n<sub>1</sub> + n<sub>2</sub> + n<sub>3</sub> + n<sub>4</sub> ≤ 15,

$m_1$ ,  $m_2$  and  $m_3$  are independently integers from 0 to 3, such that  $1 \leq m_1 + m_2 + m_3 \leq 3$  and

wherein one or more  $-\text{CH}_2-$  groups present in the hydrocarbon chain of (III) may be replaced, independently, by one or more groups selected from  $-\text{O}-$ ,  $-\text{CH}=\text{CH}-$  or  $-\text{C}\equiv\text{C}-$ ,

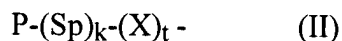
with the proviso that the carbon-carbon double bond of P is not directly connected to the carbon atom of  $\text{Y}^1$  or  $\text{Y}^2$ ,

$k$  is 1,

$X$  is  $-\text{O}-$ ,  $-\text{CO}-$ ,  $-\text{COO}-$ ,  $-\text{OCO}-$ ,  $-\text{CH}=\text{CH}-$ ,  $-\text{C}\equiv\text{C}-$ , or a single bond, more preferably  $-\text{O}-$ ,  $-\text{COO}-$ ,  $-\text{OCO}-$  or a single bond,

$t$  is 1.

35. (currently amended): A compound according to ~~claim 24~~ claim 21, wherein at least one of  $\text{A}^1$  to  $\text{A}^3$  has the meaning of formula (II),



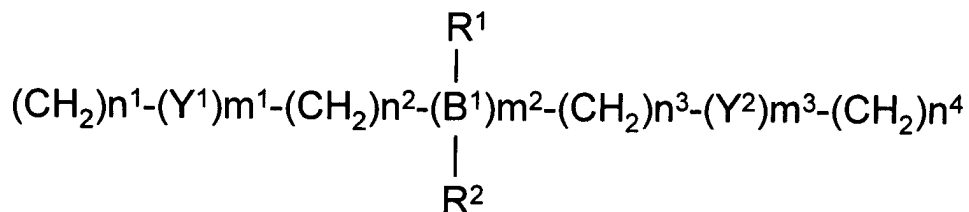
wherein:

$\text{P}$  is hydrogen or a polymerizable group which is  $\text{CH}_2=\text{CW}-$ ,  $\text{CH}_2=\text{CW}-\text{O}-$ ,  $\text{CH}_2=\text{CW}-\text{COO}-$ ,

wherein:

$\text{W}$  is H or  $\text{CH}_3$ ,

$\text{Sp}$  has the meaning of formula (III)



(III)

wherein:

$Y^1$  and  $Y^2$  each independently represent  $-\text{OCO}-$  or  $-\text{COO}-$ ,

$B^1$  represents C or CH,

$R^1$  is hydrogen,

$R^2$  represents a methyl, ethyl, propyl, butyl, pentyl or hexyl group

and most preferably a methyl or ethyl group,

$n_1, n_2, n_3$  and  $n_4$  are independently integers from 0 to 15, such that  $0 \leq n_1 + n_2 + n_3 + n_4 \leq 15$ ,

$m_1, m_2$  and  $m_3$  are independently integers from 0 to 3, such that  $m_1 + m_2 + m_3 \leq 3$ , and

wherein one or more  $-\text{CH}_2-$  groups present in the hydrocarbon chain of (III) may be replaced, independently, by one or more groups selected from  $-\text{O}-$ ,  $-\text{CH}=\text{CH}-$  or  $-\text{C}\equiv\text{C}-$ ,

with the proviso that the carbon-carbon double bond of P is not directly connected to the carbon atom of  $Y^1$  or  $Y^2$ ,

$k$  is 1,

$X$  is  $-\text{O}-$ ,  $-\text{CO}-$ ,  $-\text{COO}-$ ,  $-\text{OCO}-$ ,  $-\text{CH}=\text{CH}-$ ,  $-\text{C}\equiv\text{C}-$ , or a single bond, more preferably  $-\text{O}-$ ,  $-\text{COO}-$ ,  $-\text{OCO}-$  or a single bond,

$t$  is 1.

36. (currently amended): A method of using a chiral or achiral rod shaped compound, comprising preparing mesogenic polymer mixtures according to claim 1 with a chiral or achiral rod shaped compound, wherein said compound ~~with a chiral or achiral rod shaped compound,~~

~~wherein said compound has a rigid core and comprises at least two fused or linked, optionally substituted, non-aromatic, aromatic, carbocyclic or heterocyclic groups, and also comprises at least one optionally substituted alkyl residue, and also comprises at least one polymerizable group and has a transition temperature to the isotropic state of  $40^{\circ}\text{C}$   $20^{\circ}\text{C}$  or lower.~~

37. (previously presented): Polymer networks prepared from a mixture according to claim 1.

38. (previously presented): Liquid crystalline polymer films prepared from a mixture according to claim 1.

39. (previously presented): A method of using a polymer network or a liquid crystalline polymer film, comprising preparing unstructured or structured optical and electro-optical components and multilayer systems from (A) a polymer network prepared from a mixture according to claim 1 or (B) a liquid crystalline polymer film prepared from a mixture according to claim 1.

40. (previously presented): A method of using a mesogenic, cross-linkable mixture, comprising preparing an elastomer, polymer gel, polymer network or polymer film from a mesogenic, cross-linkable mixture according to claim 1.

41. (previously presented): A method of using a polymer network, comprising manufacturing waveguides, optical gratings, filters, retarders, polarizers, piezoelectric cells or thin film exhibiting non-linear optical properties from a polymer network according to claim 37.

42. (previously presented): Optical or electro-optical components comprising a polymer network according to claim 37.

43. (previously presented): A method of using a liquid crystalline polymer film, comprising manufacturing waveguides, optical gratings, filters, retarders, polarizers,

piezoelectric cells or thin film exhibiting non-linear optical properties from a liquid crystalline polymer film according to claim 38.

44. (previously presented): Optical or electro-optical components comprising a liquid crystalline polymer film according to claim 38.

45. (new): A mixture according to claim 1, wherein X is -O-, -COO-, -OCO- or a single bond.

46. (new): A compound according to claim 21, wherein X is -O-, -COO-, -OCO- or a single bond.